IBM Office Products Division
Customer Engineering

IMPROVED PRINT MECHANISM
VU-JUSTMENT

IBM "Selectric" Composer

Form No. 241-5513-0
October, 1968

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Purpose Of This Vu-Justment

To provide a complete adjustment sequence for the new level print mechanism and for all Composers with modified print mechanisms.

The modification to the print mechanism and the redesign of the UN-11-B font is part of a continuing effort to provide the best possible print quality on all type sizes.

"SELECTRIC" COMPOSER PRE-ADJUSTMENT CHECK

The Following Conditions Should Be Checked – Before Adjusting The Composer For Print:

1. Drive Belt, tight without objectionable noise.
2. Gear Train, free of binds (.001" to .005" backlash).
3. Shift Spring, no drag in upper or lower case.
4. Bias Rewind, no binds, bias rewind gear slot 1/2 tooth below horizontal. (Fig. 1)

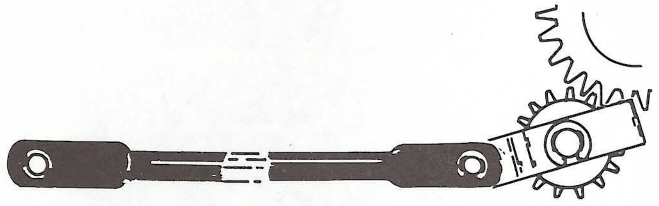


Figure 1

5. Cycle Bail Overthrow Stop, .005" to .010" clearance with the bail resting on the high point of the positive cams.
6. Print Shaft end play (.002" to .004").
7. Print Sleeve end play (.001" to .003").
8. Rocker Upstop, no interference with font against platen.
9. Card Holder, no interference with font.
10. Platen, free of indentations or pits.
11. Recommended papers, as outlined in the graphics section of the Impressions Manual, should be used to check print quality. IBM Photo Master paper is an example of a quality coated paper.
12. Use ribbons dated later than K017 (October 1, 1967).

PRINT CAM FOLLOWER STOP SCREW (FIG. 3)

Adjust the stop screw (1) so that the print cam follower roller contacts the LOW Velocity Track (2) .050" to .100" from the ridge on the print cam (3).

This adjustment can be made in the following manner:

Position carrier to position No. 70, using the dynamic cycling tool, modified as illustrated, loosen the stop screw locknut. (Fig. 2)

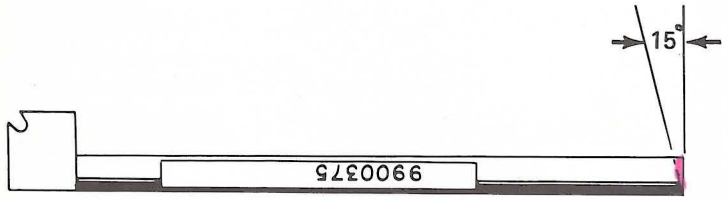


Figure 2

Remove material at 15 Deg. angle from end of handle.

Hand cycle a LOW Velocity character (.) until the print shaft keyway is straight down.

Bias the rocker towards the front of the machine and adjust the stop screw CCW until it leaves the print cam follower. Then adjust the stop screw CW until it just contacts the print cam follower; tighten the locknut.

Check this adjustment by printing several periods and observing the print cam follower roller track on the low velocity track of the print cam. The point of contact is a point where ALL grease has been displaced and this should be checked carefully.

Adjusting the stop screw CW makes the print cam follower roller contact later and adjusting the stop screw CCW makes it contact earlier.

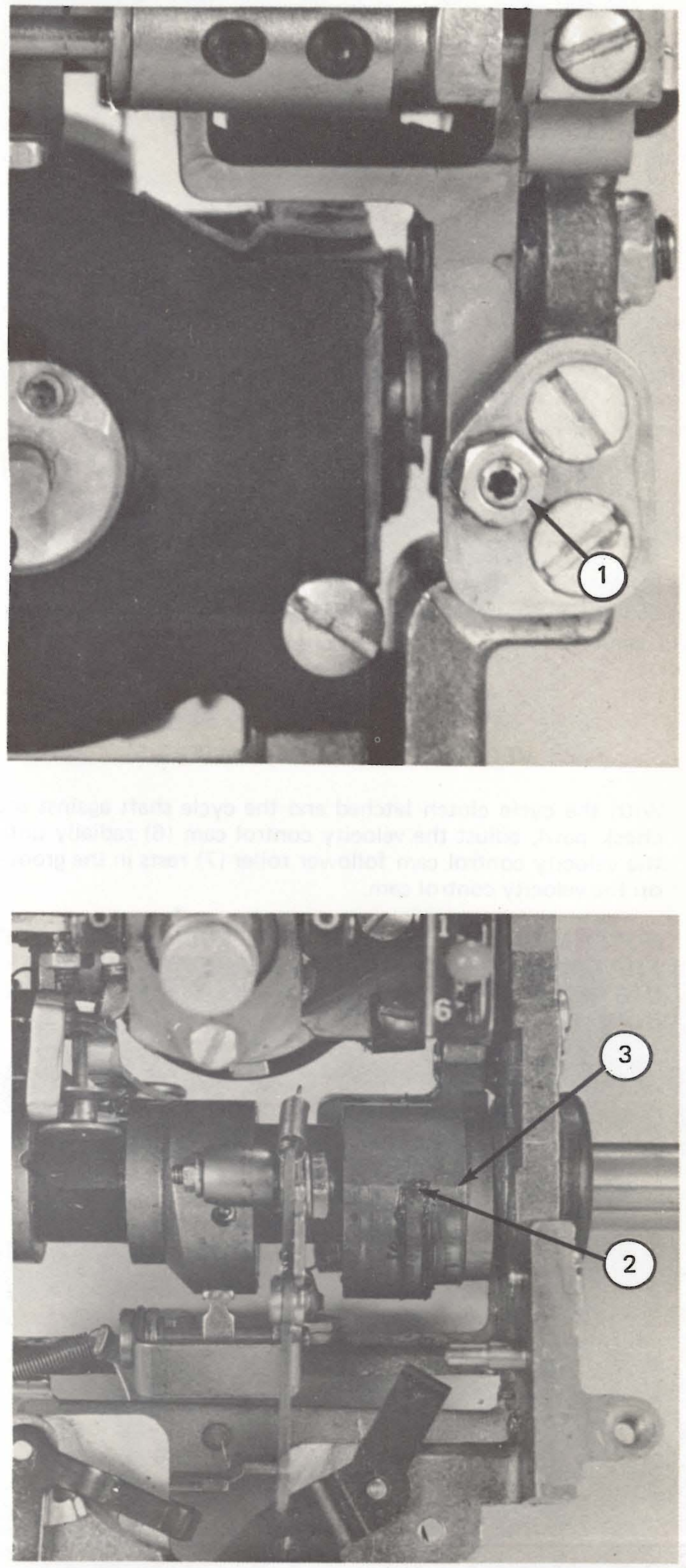


Figure 3

TAB CORD ANCHOR ASSEMBLY (FIG. 4)

Position the tab cord anchor assembly (4) so that the velocity slider assembly shaft (5) is parallel to the print sleeve.

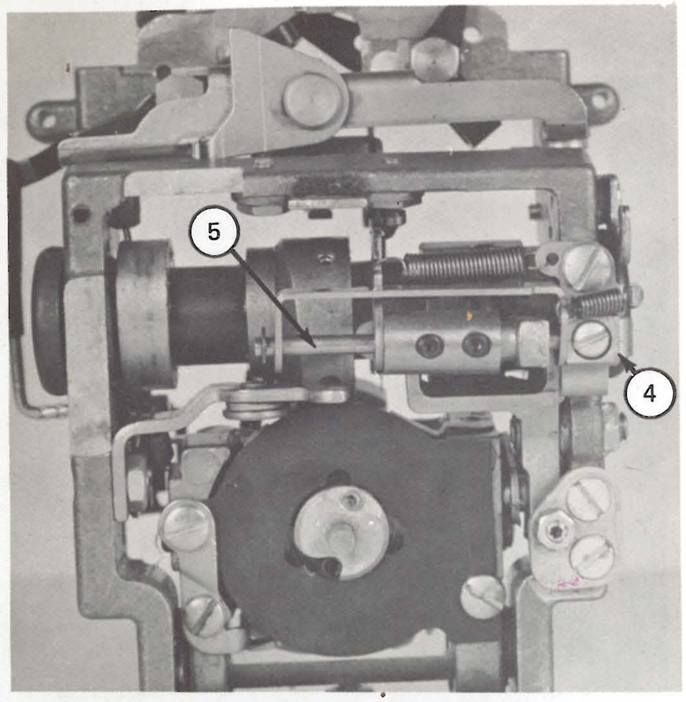


Figure 4

VELOCITY CONTROL CAM (FIG. 5)

With the cycle clutch latched and the cycle shaft against the check pawl, adjust the velocity control cam (6) radially until the velocity control cam follower roller (7) rests in the groove on the velocity control cam.

NOTE: MAINTAIN .002" TO .004" END PLAY OF THE FILTER SHAFT RELATIVE TO ITS LEFT-HAND BEARING WHEN TIGHTENING THE VELOCITY CONTROL CAM.

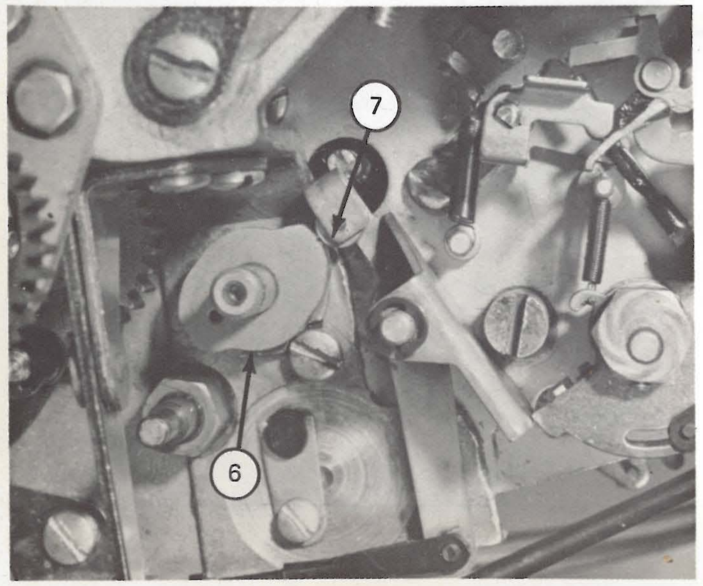
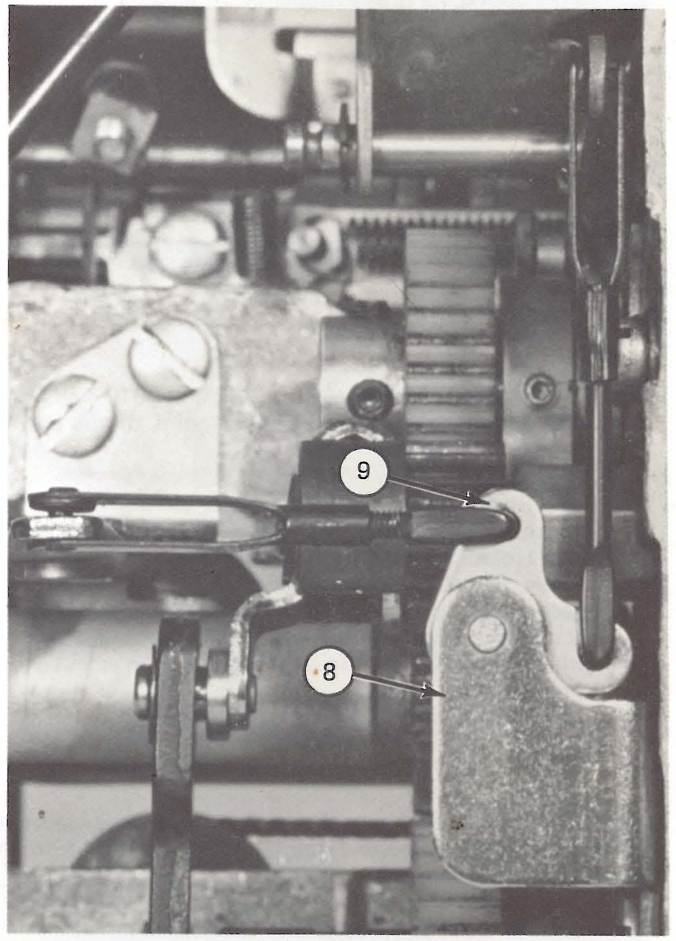


Figure 5

VELOCITY CONTROL BELLCRANK (FIG. 6)

Adjust the velocity control bellcrank bracket (8) front to rear, and as far down as possible, to make the bellcrank (9) throw equally over center (insert) as the velocity cam follower is operated from the high velocity position to the no-print position.



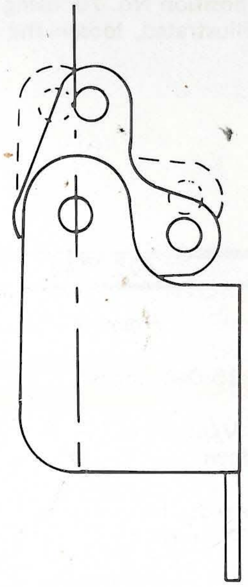
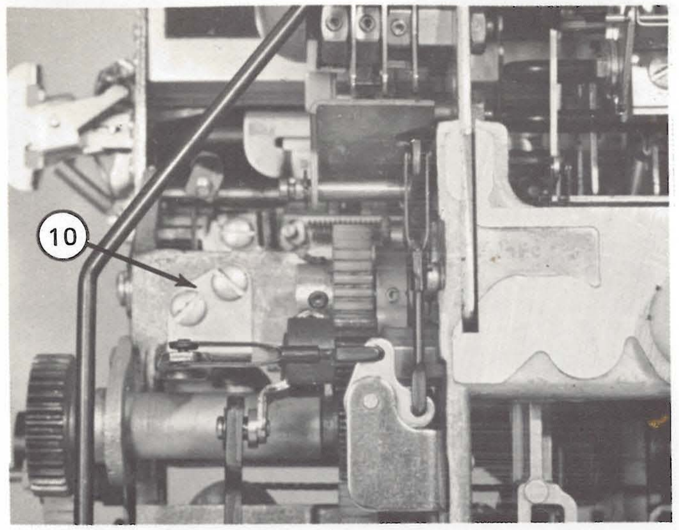


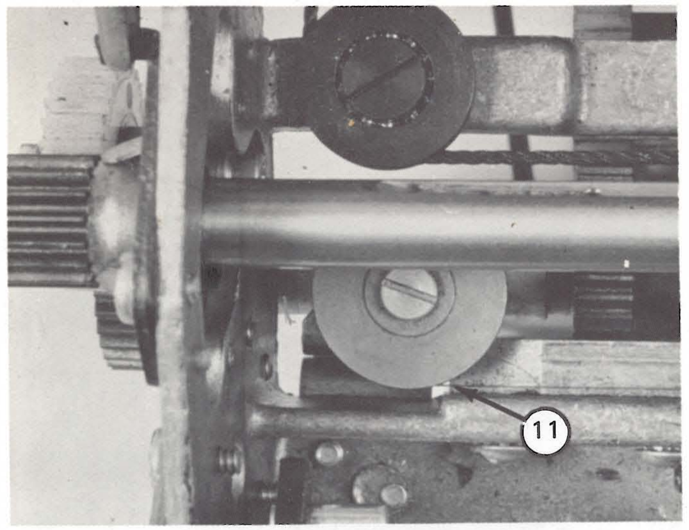
Figure 6

VELOCITY TAPE ARM (FIG. 7)

Adjust the velocity tape arm mounting bracket (10) to the rear as far as possible and parallel to the machine side frame.



Check this adjustment by observing the velocity tape arm pulley and velocity tape for a clearance with the power frame when operated to a no-print position (11).



Adjust the link that connects the bottom of the velocity tape arm to the velocity control bellcrank so that the top of the arm clears the power frame by .030" to .040" (12).

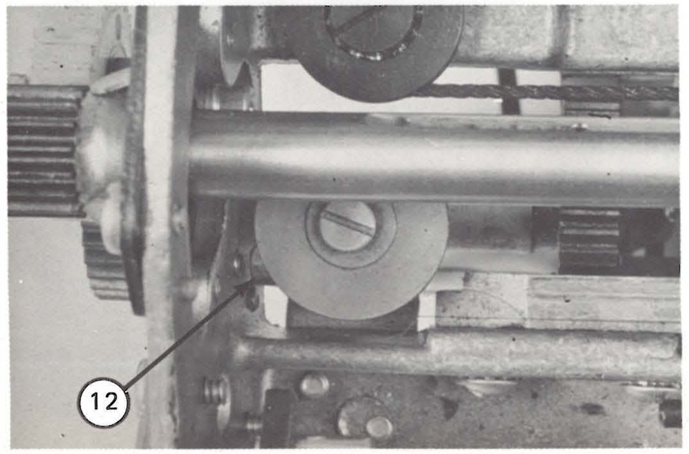


Figure 7

VELOCITY SLIDER ASSEMBLY (FIG. 8 A & B)

Velocity Shift Yoke

With the velocity tape connector spring lug just resting against the no-print tooth of the velocity control detent, adjust the velocity shift yoke for a .005" to .015" clearance between the left face of the print cam follower roller and the RH edge of the low velocity track.

This adjustment can be easily made in the following manner:

a. Position carrier over cycle shaft.
b. Hand cycle a no-print (spacebar) until the print shaft keyway is straight down. Insure that the tape connector traveled to the no-print position (13).
c. Loosen the two set screws in the velocity tape connector
d. Insert a .010" feeler gauge between the RH end of the velocity control detent and tab cord anchor bracket (14).
e. Push in on the bottom of the velocity tape arm: This will hold the velocity tape connector lug against the no-print tooth. Push the print cam follower roller to the left against the RH edge of the low velocity cam track. Tighten the RH set screw just tight enough to hold this adjustment.

NOTE: BOTH SET SCREWS WILL BE TIGHTENED WHEN COMPLETING THE VELOCITY TAPE CONNECTOR ADJUSTMENT.

f. Hold the velocity control detent out of engagement with the velocity tape connector and continue hand cycling until filter shaft is at rest.

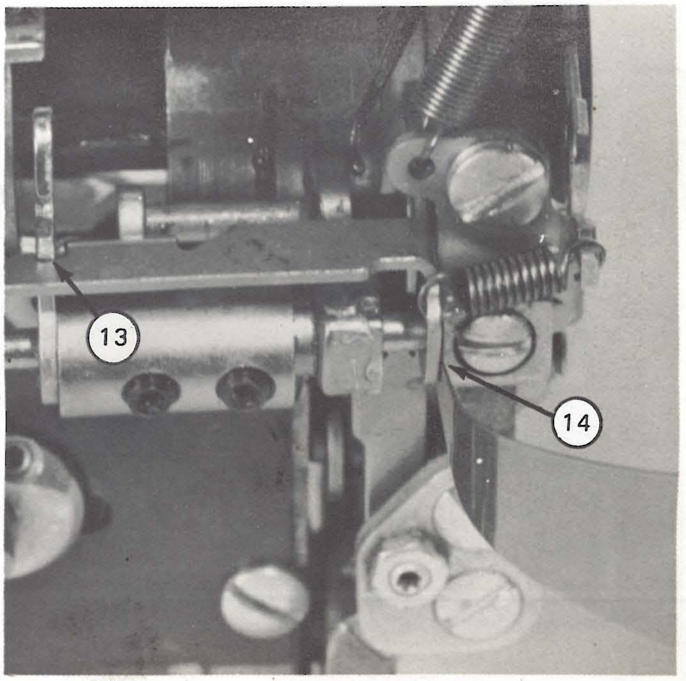


Figure 8A

Velocity Tape Connector

With the machine at rest, the velocity tape connector must clear the velocity control detent by .010" to .018". This adjustment can be accomplished by rotating the velocity tape connector down until it just touches the velocity control detent and release the tape connector. Observe this clearance (15) by sighting under the carrier or measure with a wire gauge. Tighten both set screws after checking this adjustment for accuracy.

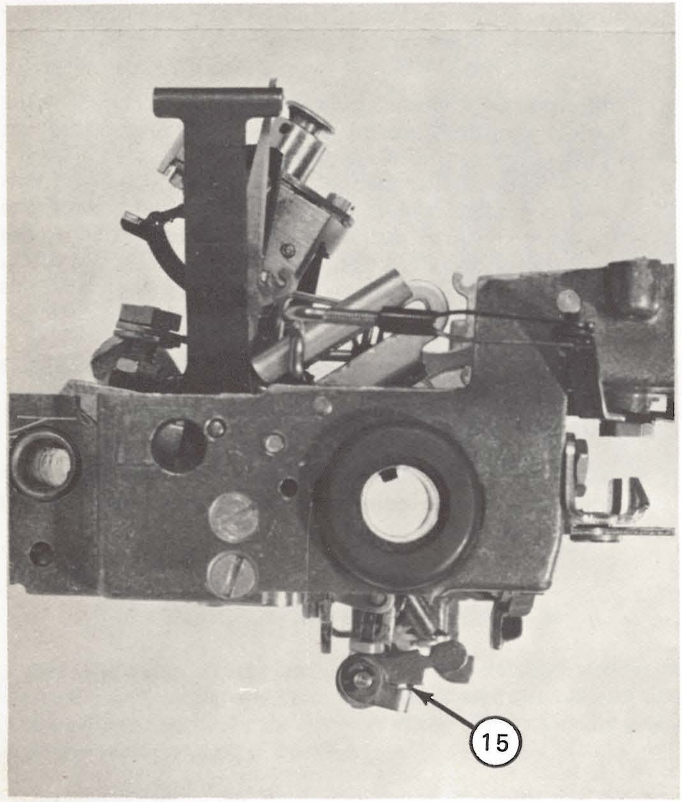


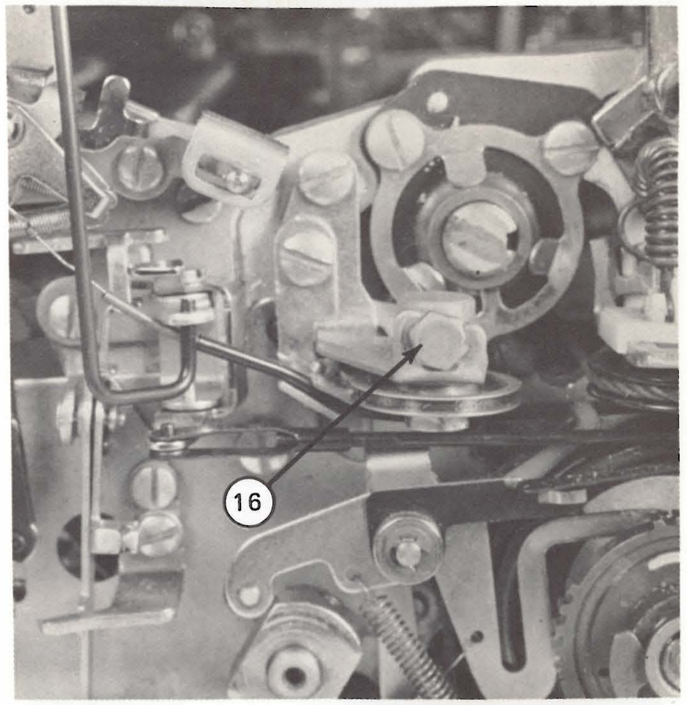
Figure 8B

RIGHT HAND VELOCITY TAPE PULLEY (FIG. 9)

Adjust the RH velocity tape pulley (16) so there is a .005" to .015" clearance between the velocity tape connector and the left end of the velocity control detent (17) when the velocity cam follower roller is resting on the groove of the velocity control cam.

NOTE: A MINIMUM OF .005" CLEARANCE MUST EXIST BETWEEN THE VELOCITY SHIFT YOKE AND THE PRINT CAM FOLLOWER FRAME (18). CHECK FOR THIS CLEARANCE BY PUSHING THE VELOCITY SLIDER ASSEMBLY TO THE LEFT.

Check both lobes of the velocity control cam and adjust to the one that provides the least amount of clearance.



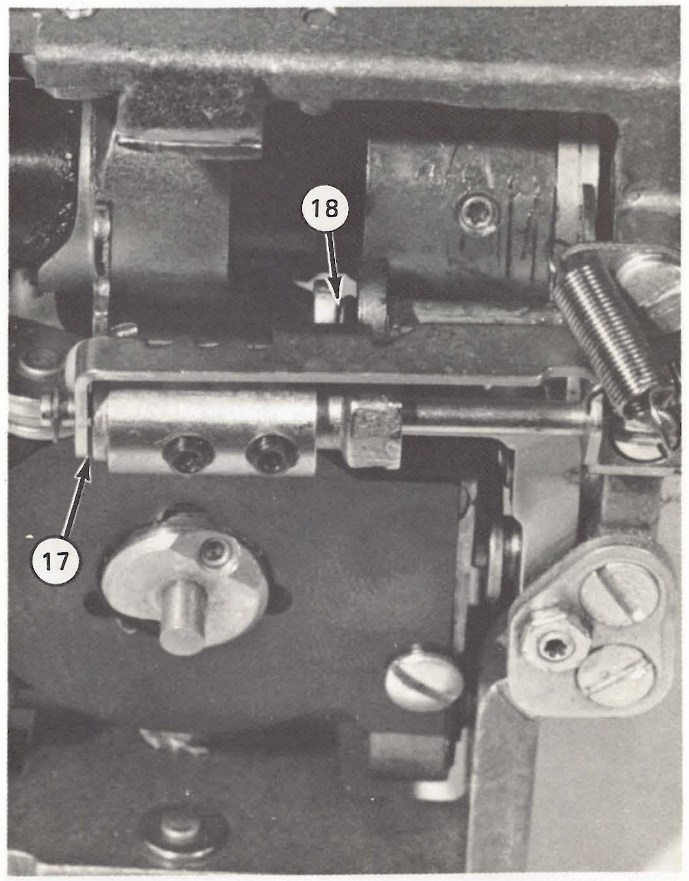


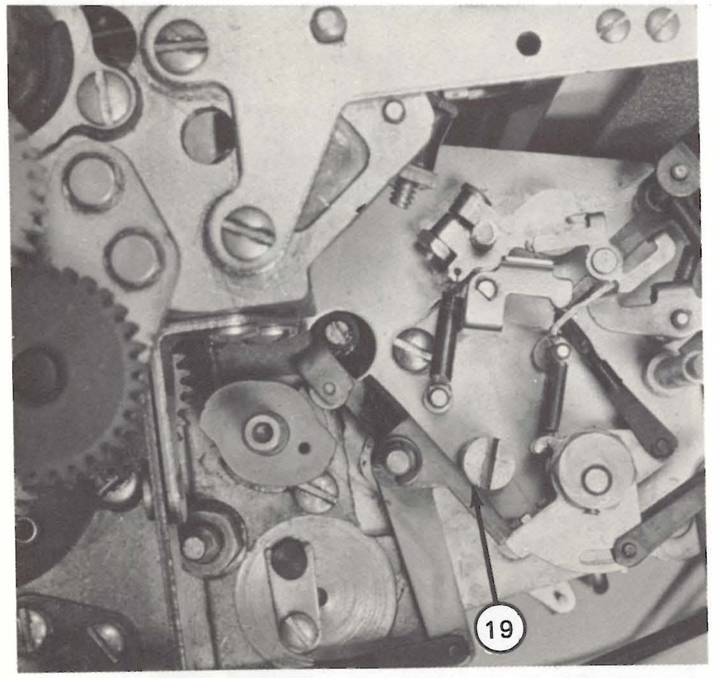
Figure 9

NO-PRINT ECCENTRIC STOP (FIG. 10)

Adjust the eccentric stop (19) so that when a no-print (spacebar) operation is hand cycled, the velocity slider assembly will receive enough motion for the velocity tape connector spring lug to detent in the no-print tooth of the velocity control detent (20). The tape connector spring lug may overthrow the detent tooth by a maximum of .005". Keep the eccentric in the lower portion of its orbit.

Use the following procedure to make this adjustment:

a. Position carrier over cycle shaft.
b. Hand cycle a spacebar until print shaft keyway is straight down. The velocity cam follower should now be resting against the no-print eccentric stop (19).
c. Rotate the eccentric stop until the tape connector spring lug is within .005" of the no-print detent tooth (20).
d. This clearance may be estimated by pushing lightly to the left on the velocity tape connector. Tighten the no-print eccentric nut; then hand cycle a spacebar and recheck the adjustment.



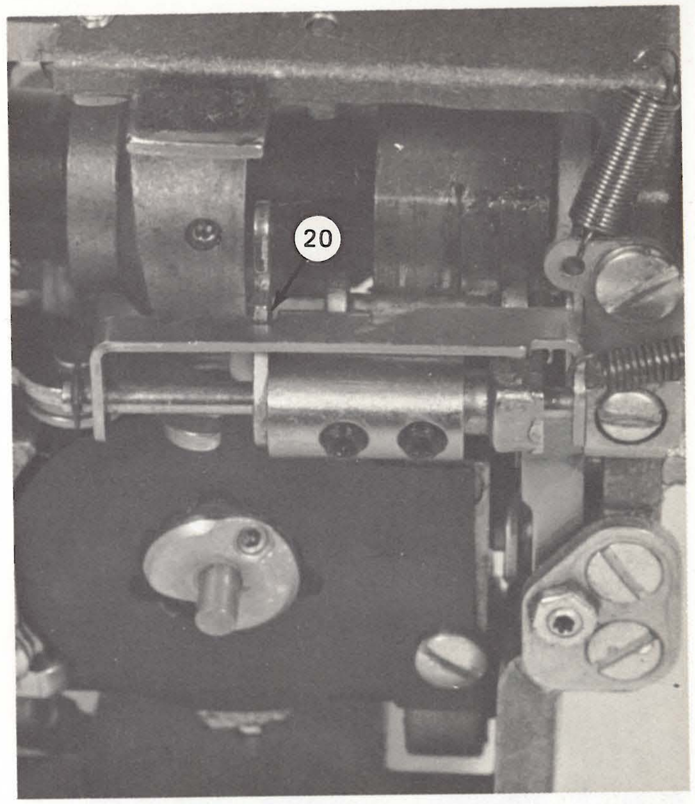


Figure 10

HIGH VELOCITY STOP (FIG. 11)

Adjust the high velocity stop eccentric (21) so there is .001" to .005" clearance between the high velocity stop and the velocity cam follower (22).

Check both lobes of the velocity control cam and adjust to the one that provides the least amount of clearance.

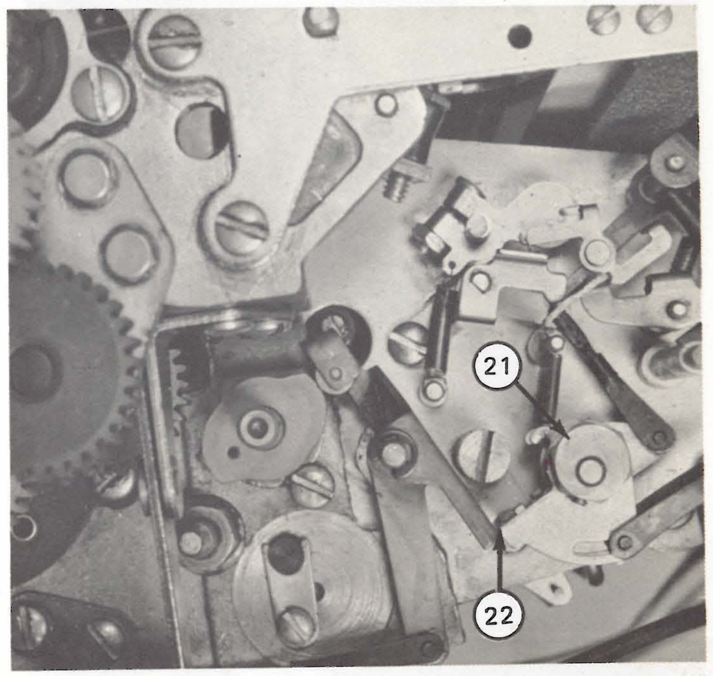


Figure 11

MEDIUM VELOCITY STOP (FIG. 12)

Adjust the medium velocity stop eccentric (23) so that when the letter "i" is hand cycled, the velocity slider receives enough motion to allow the velocity tape connector to just detent in the medium velocity detent tooth (24). The velocity slider may overthrow by a maximum of .005".

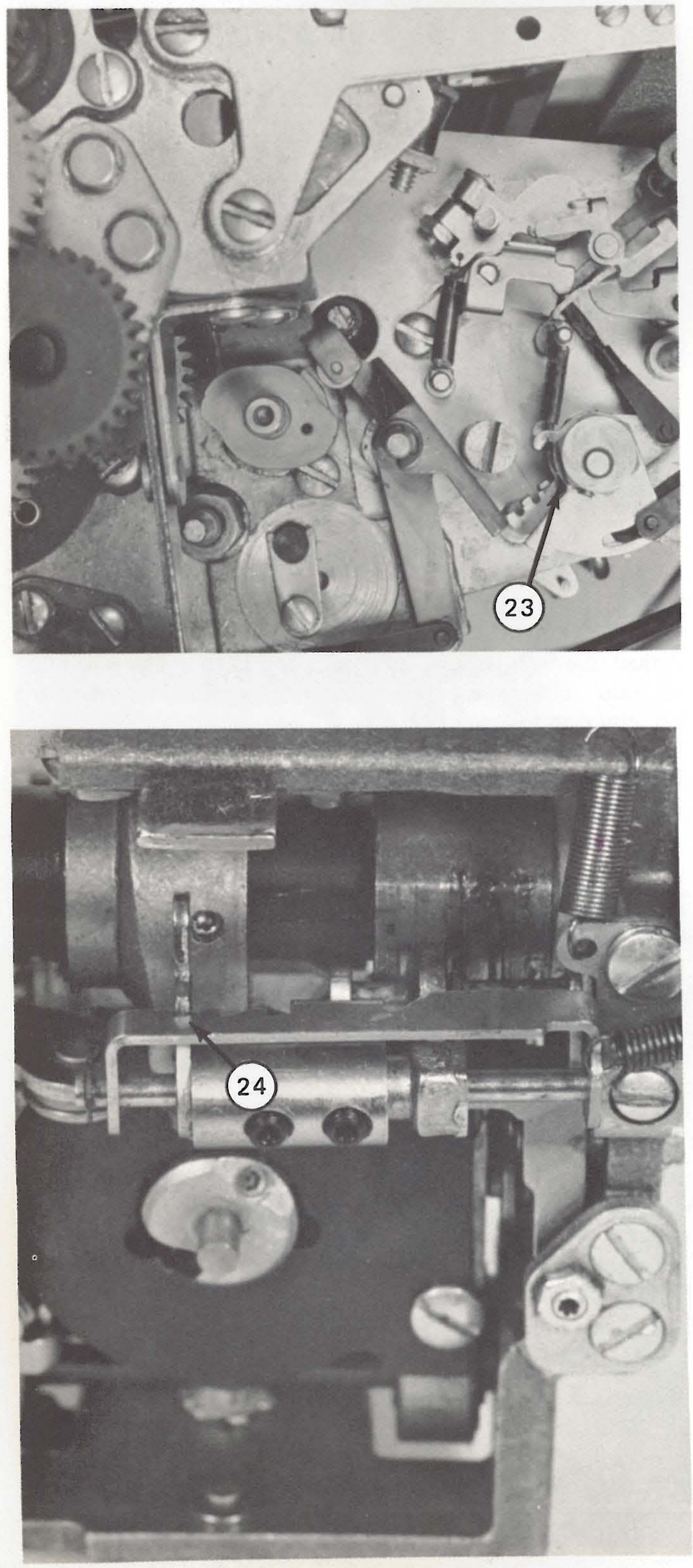


Figure 12

LOW VELOCITY STOP (FIG. 13)

Adjust the low velocity stop eccentric (25) so that when the period (.) is hand cycled, the velocity slider receives enough motion to allow the velocity tape connector to just detent in the low velocity detent tooth (26). The velocity slider may overthrow by a maximum of .005".

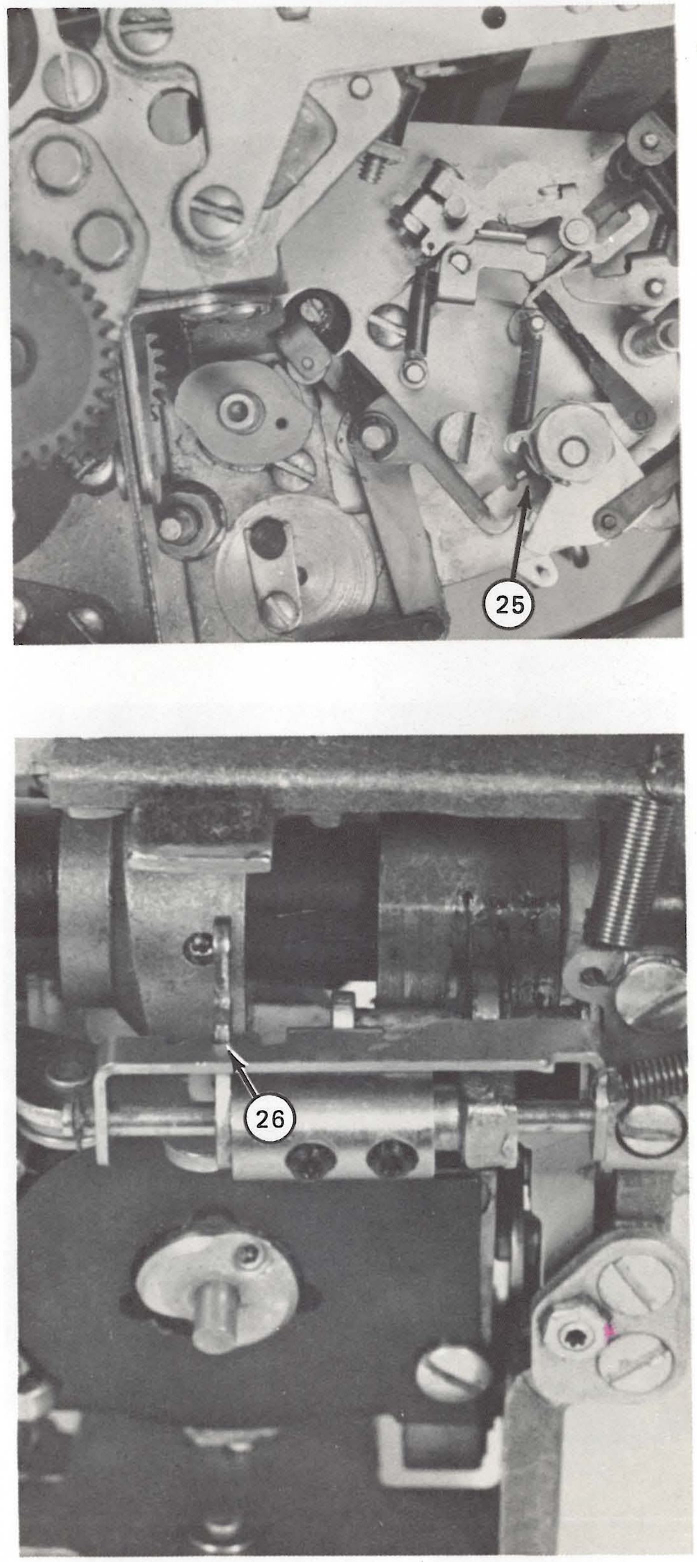


Figure 13

LOW VELOCITY BAIL LEVER (FIG. 14)

Position the low velocity bail lever laterally on the bail so that the lever arm is 7/16" away from the keyboard side frame (27).

MEDIUM VELOCITY BAIL LEVER

Position the medium velocity bail lever laterally on the bail so that the lever arm is .035" to .045" from the end of the bail (28).

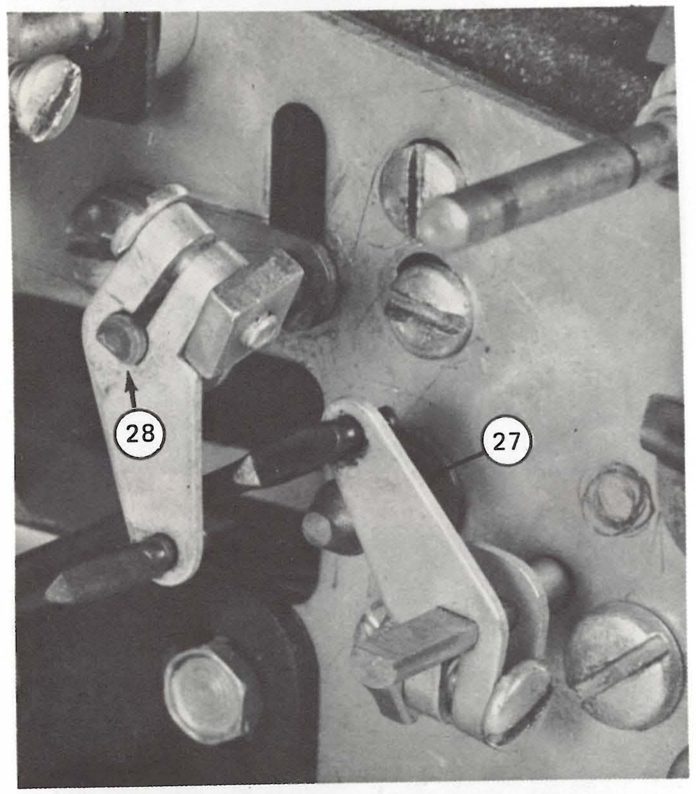


Figure 14

NO-PRINT KEYLEVER (FIG. 15)

Adjust the screw (29) for a .002" to .005" clearance between the head of the screw and the keylever. Adjust the no-print detent mounting bracket (30) for the following conditions: Laterally – for .003" to .006" clearance between the C-Clip. and the keylever. Rotationally – so when the keylever is at rest, it is aligned with the margin release keylever.

NOTE: THE BELLCLAPPER BELLCRANK ARM WAS HELD OUT OF POSITION TO SHOW THE NO-PRINT KEYLEVER MOUNTING IN THE ILLUSTRATION.

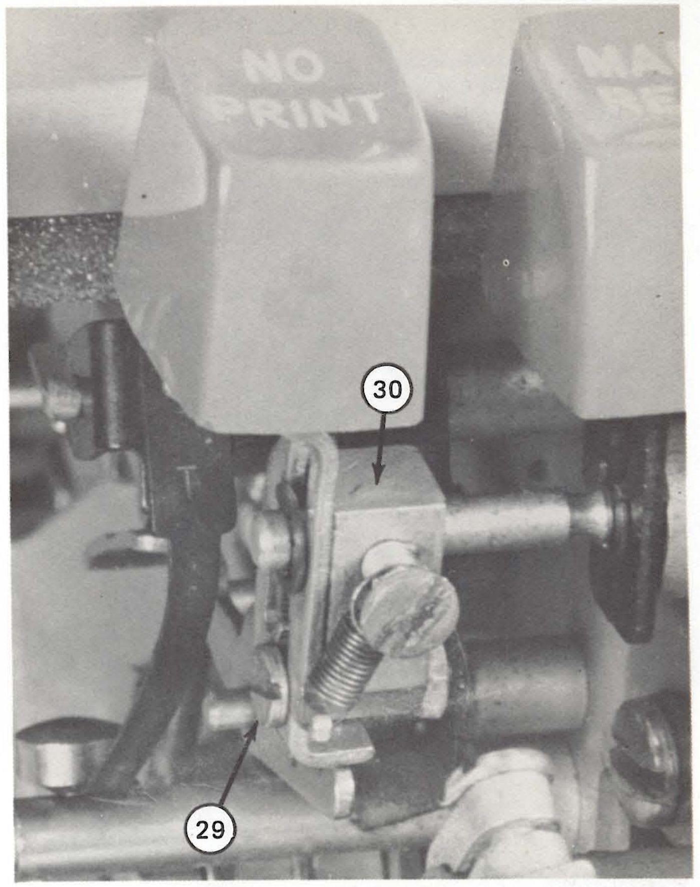


Figure 15

NO-PRINT BELLCRANK (FIG. 16)

Form the ear on the no-print bellcrank (31) for a .005" to .030" clearance between the ear and the no-print bail lever (32) when the no-print keylever is at rest.

NOTE: INSTALL GRIP CLIP, PN 1172570, ON THE NO-PRINT BAIL SHAFT TO REMOVE THE PLAY BETWEEN THE NO-PRINT BAIL AND THE BAIL LEVER IN THE CCW DIRECTION. THIS IS NECESSARY ONLY ON EARLY LEVEL NO-PRINT BAILS.

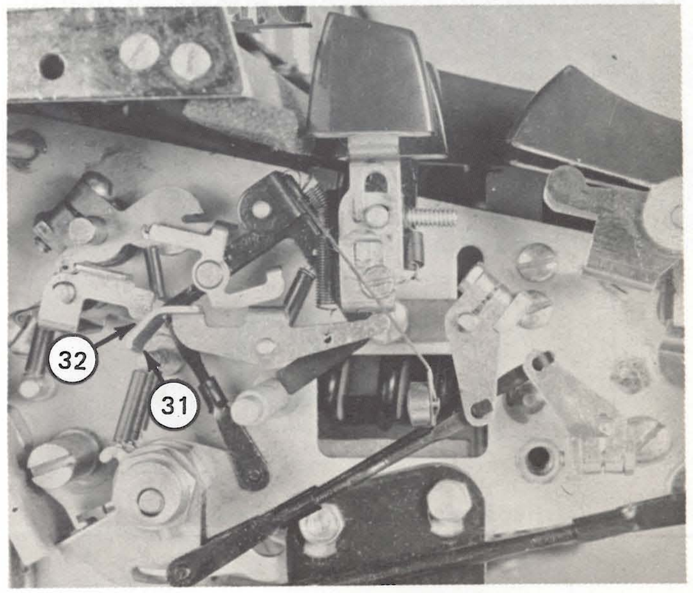


Figure 16

VELOCITY STOP LINKS (FIG. 17)

Adjust the high velocity stop link so that the high velocity stop will overlap the velocity cam follower by .025″ to .035″ (33).

Adjust the medium velocity stop link so that the cross over lug clears the high velocity stop by .001″ to .008″ (34).

Adjust the low velocity stop link so that the cross over lug clears the medium velocity stop by .001″ to .008″ (35).

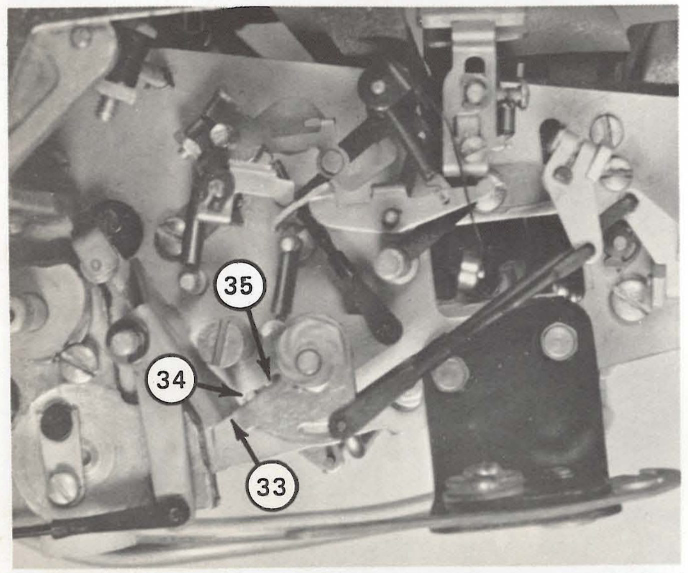


Figure 17

CARRIER SUPPORT (FIG. 18)

Adjust the carrier support at both ends to obtain a clearance of .001″ to .003″ measured between the carrier support and the ribbon feed bracket.

NOTE: LOOSEN THE CARRIER BUFFER PRIOR TO MAKING THIS ADJUSTMENT.

WITH THE CARRIER CENTERED, ADJUST THE CARRIER BUFFER FOR A .002″ TO .005″ VERTICAL CLEARANCE WITH CARRIER SUPPORT AND FRONT TO REAR FOR .020″ TO .040″ BITE UNDER THE CARRIER SUPPORT. CHECK AT BOTH ENDS FOR A POSITIVE CLEARANCE.

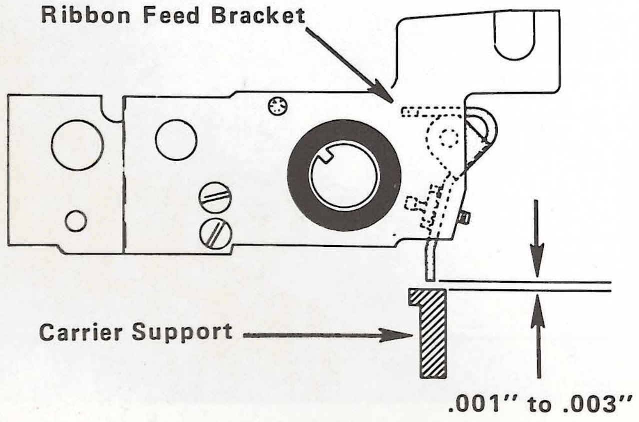


Figure 18

PLATEN LATCHES (FIG. 19)

Adjust the platen latch eccentrics (36), keeping the high point down, so that the platen is held firmly in place in the carriage plates. The platen latches should release and relatch freely with the feed roll tension removed.

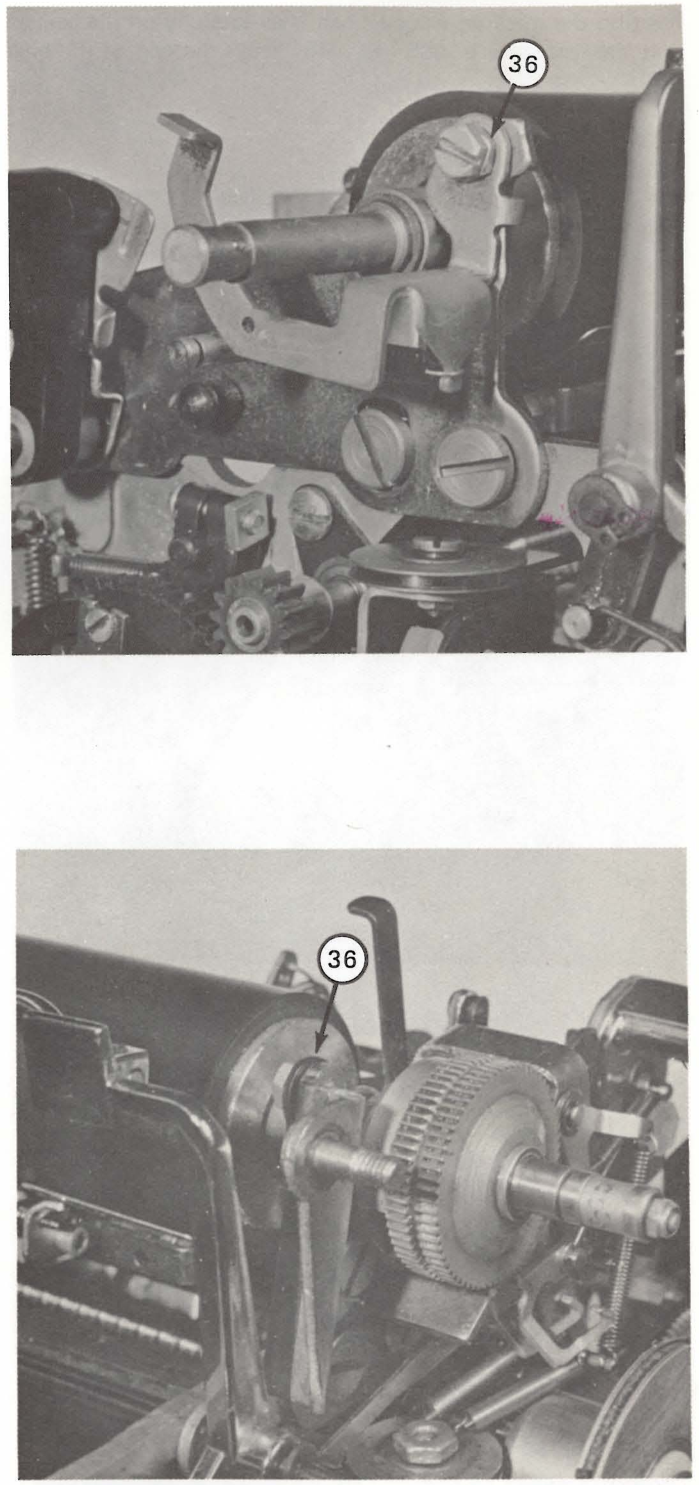


Figure 19

PLATEN POSITION (FIG. 20)

To properly adjust the print mechanism the correct platen position must be established first and then the print adjustments made that are relative to platen position. This involves both a vertical and a front to rear position. Because of the method used to position the platen, it is necessary to adjust them alternately until both are correct.

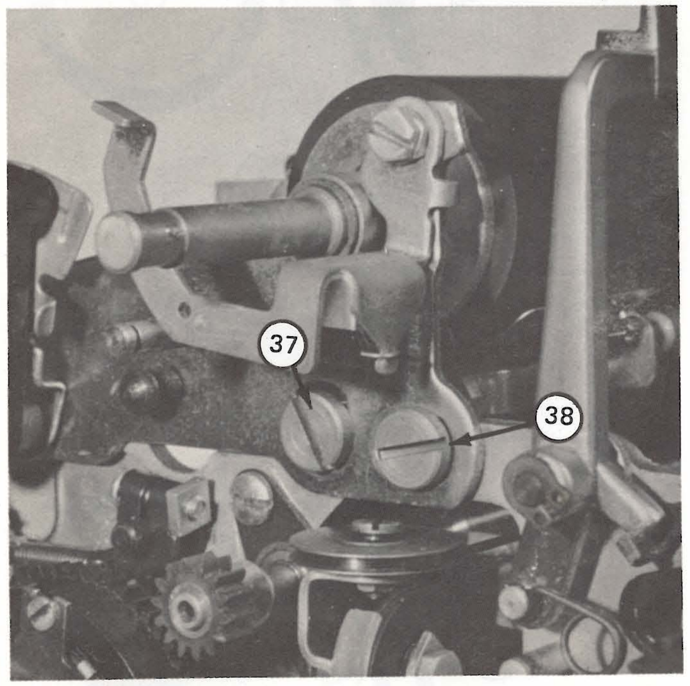
Vertical

Adjust the front eccentrics (37) to obtain even top and bottom of the upper case "M" and "H". The impression control lever should be set at No. 1 and the largest bold face type available should be used. Check across the complete writing line.

Front To Rear

Adjust the rear eccentrics (38) to position the platen for the following condition: With the Hooverometer head set at the No. 2 scribe line, it should just span the distance from the print shaft to the platen with a .020″ feeler gauge added between the print shaft and the Hooverometer head (39).

CAUTION: AFTER CHANGING THE VERTICAL POSITION OF THE PLATEN, CHECK THE ADJUSTMENT OF THE INDEX PAWL CARRIER LINK, FEED ROLL CENTER SUPPORT, CARD HOLDER, AND CARD HOLDER BRACKET.



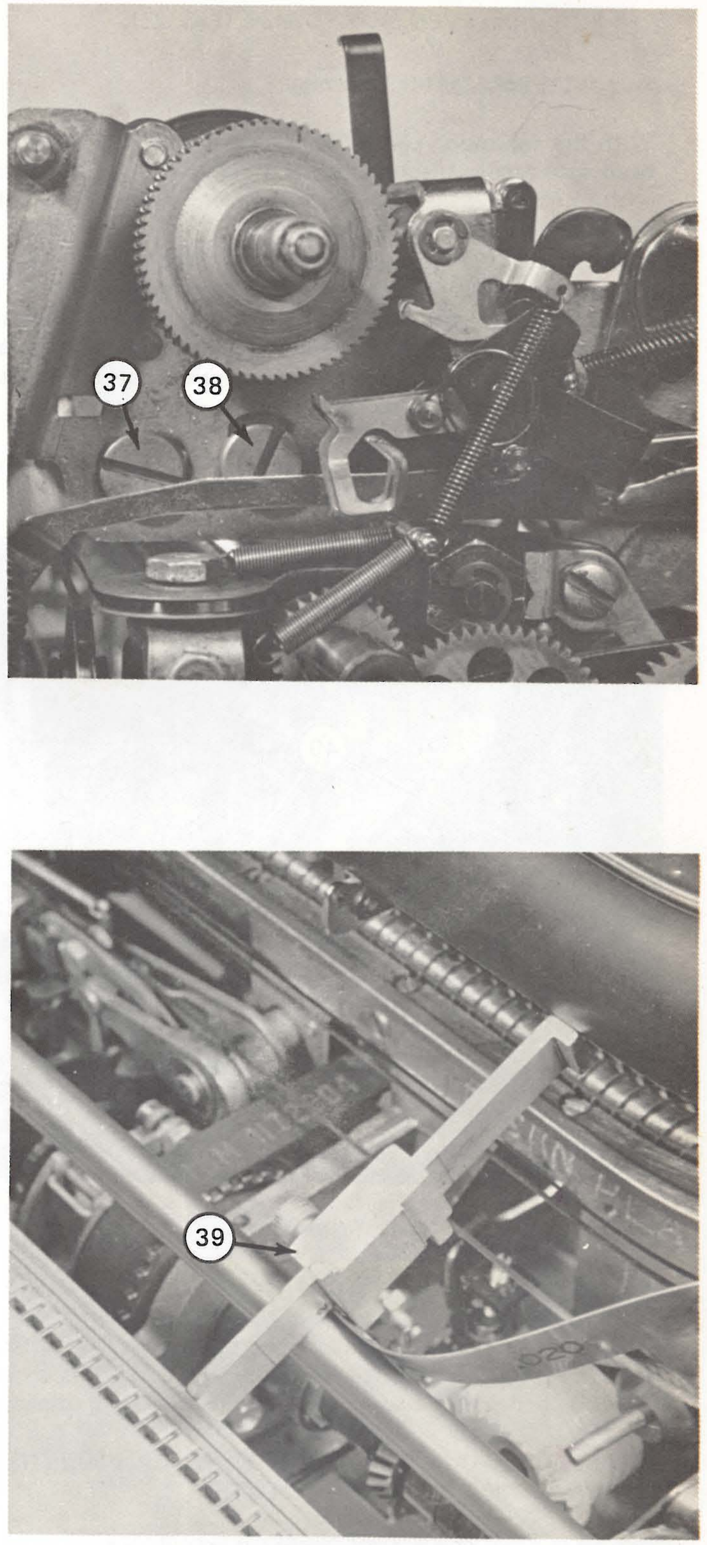


Figure 20

EVEN SIDE TO SIDE (FIG. 21)

Adjust the yoke for the following:

With the impression control set at No. 1 and using the largest bold face type available, type "M", "W", and "H" across the width of the platen. Check for even color balance between the right and left side of these characters.

It is necessary to loosen the two binding screws and the binding nut on the detent actuating lever mounting stud to adjust the yoke (40). The two holes in the rear of the rocker (41) may be used in positioning the yoke. Rockers manufactured prior to S/N 5021600 may not have the hole behind the detent actuating lever mounting stud.

NOTE: CHECK HEAD ALIGNMENT AND SKIRT CLEARANCE AFTER ADJUSTING THE YOKE.

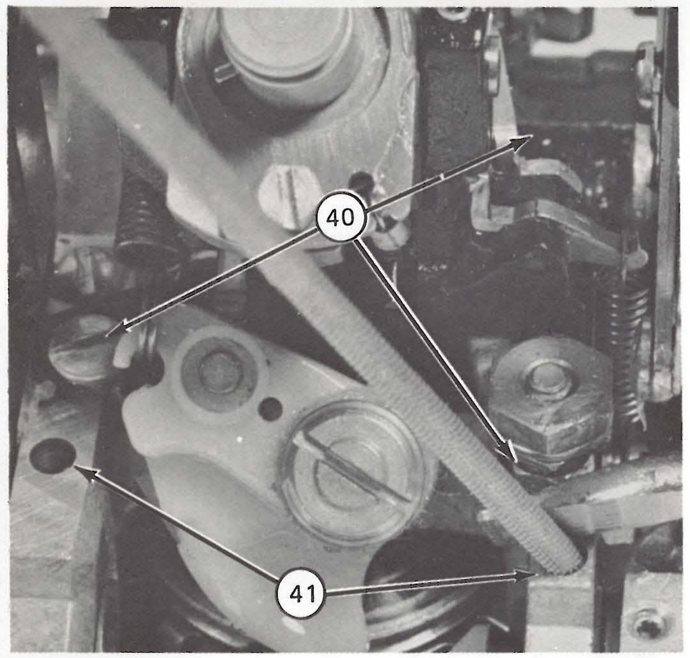


Figure 21

VELOCITY RATIO (FIG. 22)

With the impression control lever set at position No. 1, hand cycle a period (.) until the print cam follower roller is on the high point of the print cam. Make the following adjustments:

NOTE: BACK OUT THE ROCKER UPSTOP ADJUSTING SCREW. IT WILL BE ADJUSTED LATER.

a. Adjust the velocity control lever detent plate such that the impression control lever stud is against the toe of the velocity gauge (42).

Adjust the velocity control adjusting eccentric (43) to give .018" to .022" free flight, while maintaining the velocity control lever stud against the toe of the velocity gauge. Keep the high point of the eccentric forward.

The velocity gauge held against the impression control lever stud sets the powered flight and maintains this adjustment while adjusting free flight.

Final position of the velocity control lever detent plate will be closer to the platen than under former methods of adjustments.

THE VELOCITY CONTROL GAUGE MAY BE PLACED INTO POSITION USING THE FOLLOWING PROCEDURE:

Remove the ribbon take-up spool. Position bracket (44) to the rear as far as possible.

Insert the velocity control gauge to the rear of the screw (45) and rotate handle top to the rear until the tool rests solid on the rocker shaft.

Hand cycle a period (.) until the print cam follower roller is on the high point of LOW velocity cam track.

Using the rocker shaft as a PIVOT, rotate the gauge until the toe portion rests behind the impression control lever stud (small diameter). Insure that the gauge doesn't leave the rocker shaft. The toe position of the gauge behind the stud may be observed from the underside of the carrier.

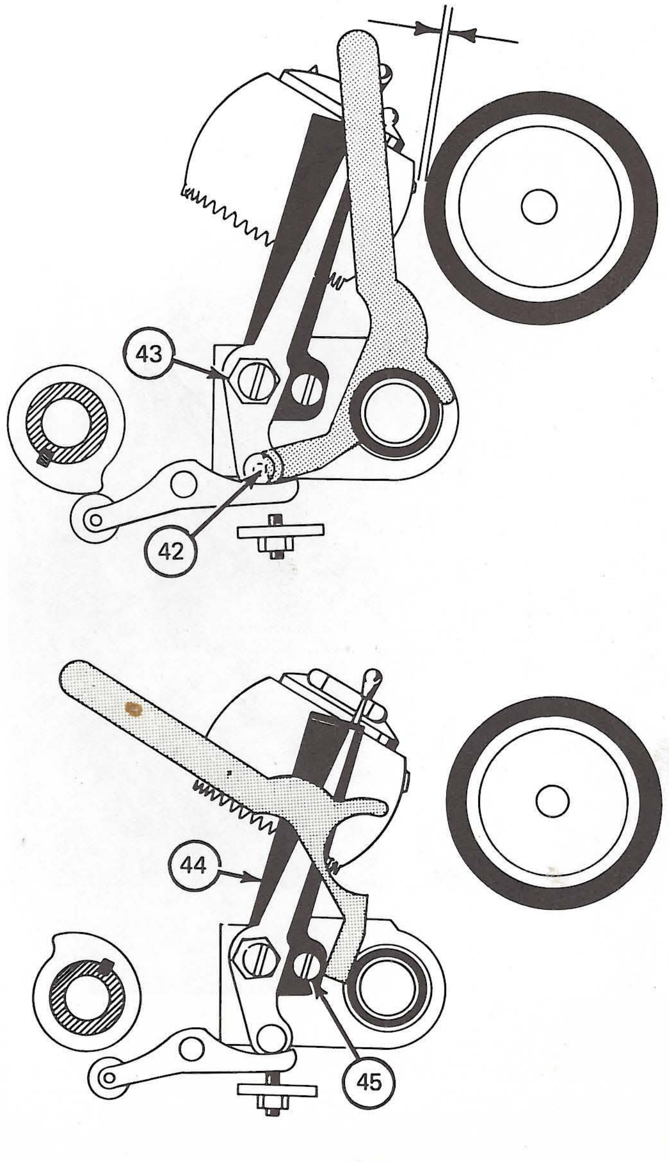


Figure 22

ROCKER RETURN SPRING (FIG. 23 A & B)

b. Adjust the rocker return spring anchor (46) or adjusting screw (47) to produce 370 to 430 grams of vertical force on the rocker measured at the tilt spring anchor (48) just as the type font touches the platen.

A gram gauge (PN 9900264) with a X10 blade may be used to check the rocker return tension by using the following procedure.

1. Attach a string approximately 12" long to the hole in the end of the X10 blade.
2. Make a loop in the other end of the string and hook this loop to the notch in the tilt spring anchor.
3. Lift the rocker with the gram gauge, keeping the string vertical and the tip of the X10 blade at a right angle to the string. Read the spring tension just as the font touches the platen.

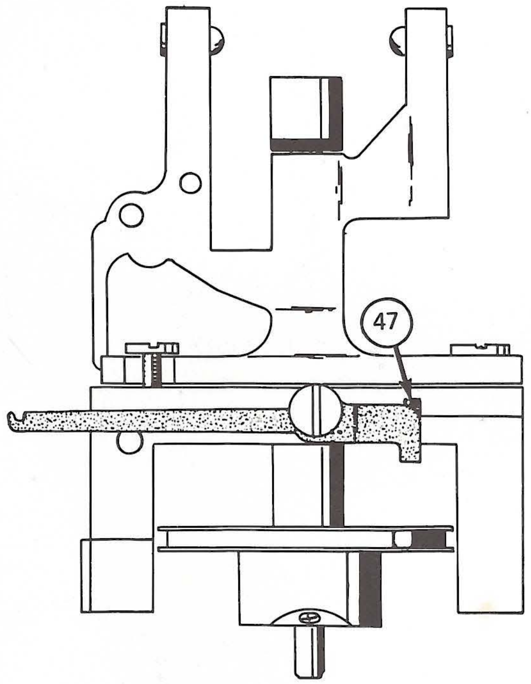


Figure 23A

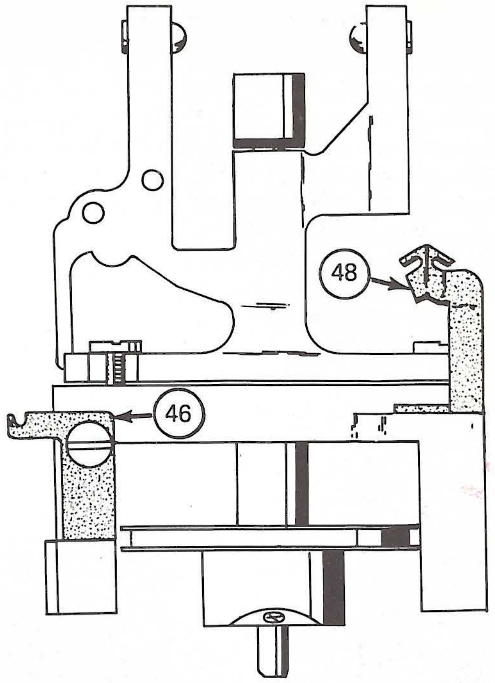


Figure 23B

NOTE: ACCESS TO THE ROCKER RETURN SPRING ANCHOR SCREW CAN BE GAINED IN THE FOLLOWING MANNER. (FIG. 24):

1. Remove the two screws from the LH end of keylever shield.
2. Position carrier to position nine.
3. Insert screwdriver between margin set scale and keylever shield at position six.

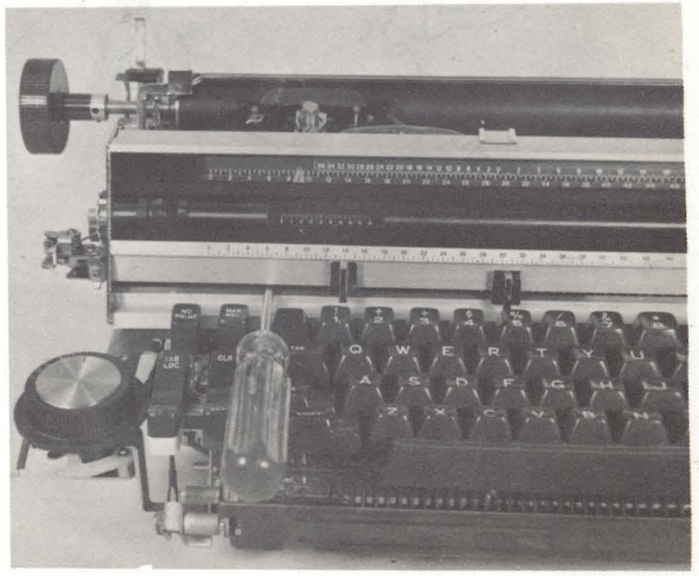


Figure 24

ROCKER UPSTOP (FIG. 25)

Place the impression control in position No. 6. Loosen the rocker upstop mounting screw and locknut on the adjusting screw. Manually push the font to the platen and while holding it there, tighten the adjusting screw until it causes the upstop to just bear against the stud on the bottom of the impression control lever; then, back off two turns and tighten adjusting screw locknut. Let the font return to rest; manually hold the upstop against the adjusting screw and tighten the rocker upstop mounting screw.

Place the impression control in position No. 1, hold font against the platen and check for no interference between the rocker upstop and the impression control lever stud.

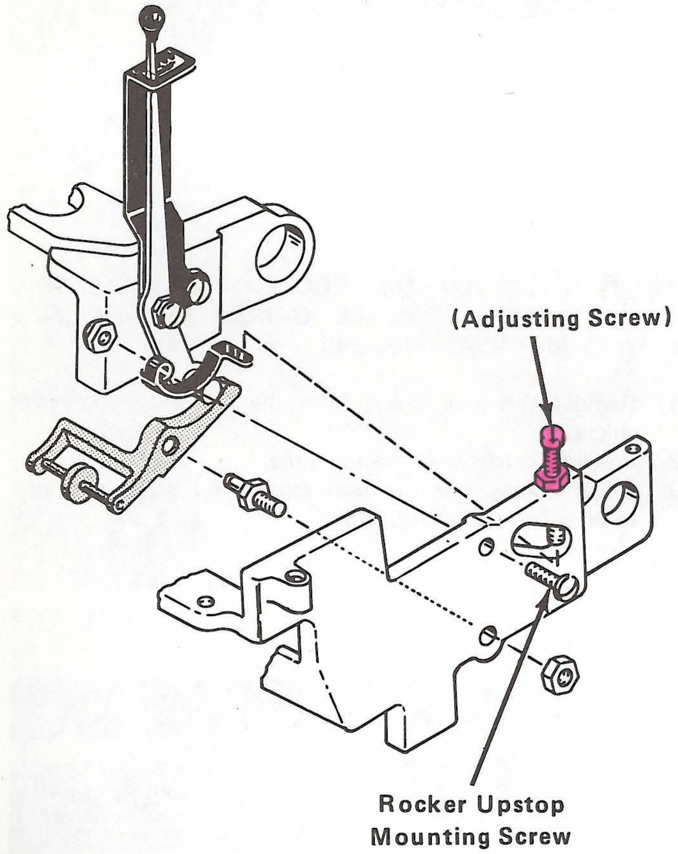


Figure 25

NOTES